

Kruchovich, G.I.

20-5-3/54

AUTHOR: KRUCHKOVICH, G.I.

TITLE: On Semireducible Riemannian Spaces (0 poluprivodimyykh rimanovyykh prostranstvakh)

PERIODICAL: Doklady Akad.Nauk SSSR , 1957, Vol.115, Nr.5, pp.862-865 (USSR)

ABSTRACT: A Riemannian space V_n is called semireducible if there exists a coordinate system in which its metric is described by

$$(1) \quad ds^2 = ds_0^2 + \epsilon ds_1^2 = g_{ij}(x^k) dx^i dx^j + \sigma(x^k) a_{\alpha\beta}(x^\delta) dx^\alpha dx^\beta$$

$$(i, j, k=1, \dots, q; \alpha, \beta, \gamma = q+1, \dots, n).$$

Theorem: In order that V_n is semireducible it is necessary and sufficient that it fibres into two families of q - and $(n-q)$ -dimensional surfaces orthogonal to each other, where one family consists of completely geodesic surfaces while the surfaces of the second family are similar with each other and they are composed by umbilical points.

Theorem: In order that V_n is semireducible it is necessary and sufficient that there exists a symmetrical tensor A_{ab} being not proportional to the measure tensor and which satisfies the

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On Semireducible Riemannian Spaces

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conditions

$$1) \quad \Lambda_{ab,c} = -\frac{1}{2} (u_a \Lambda_{bc} + u_b \Lambda_{ac}), \quad 2) \quad \Lambda_{ac} \Lambda_b^c = \Lambda_{ab},$$

where u_a is a certain gradient.

Two further theorems relate to the uniqueness of the representation of the measure tensor of a properly Riemannian space in the form (1). It is stated that for a non-one-dimensional ds_0^2 the

uniqueness is lost only in some simple special cases.

ASSOCIATION: Moscow Power Engineering Inst. (Moskovskiy energeticheskiy institut)

PRESENTED: By P. S. Aleksandrov, Academician, March 16, 1957

SUBMITTED: March 15, 1957

AVAILABLE: Library of Congress

Card 2/2

KRUCHKOYICH, O.I.

Motions in subprojective spaces of V.F. Kagan. Nauch. dokl. vys.
skoly; fiz.-mat. nauki no.1:43-47 '58. (MIRA 12:3)

1. Moskovskiy energeticheskiy institut.
(Spaces, Generalized)

AUTHOR: Kruchkovich, G.I. and Ku Ch'ao Hao (Moscow) 507/20-120-6-4/59

TITLE: A Criterion for the Semireducibility of Homogeneous Riemannian Spaces (Priznak poluprovodimosti odnorodnykh rimanovykh prostranstv)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 120, Nr 6, pp 1183-1186 (USSR)

ABSTRACT: Let V_n be a proper Riemannian ($ds^2 > 0$) homogeneous space with a continuous group of motion G_r and a stationary subgroup H . Let the group H be decomposed into a direct product of two subgroups. One of these subgroups may be arbitrary, the second one is assumed to be irreducible and to possess the following property: If the plane on which it is defined in the Euclidean tangential space of the given point is of even dimension, then the subgroup possesses no mutually commuting rotations. Under these assumptions V_n is semireducible, i.e. it is decomposed into orthogonal surfaces V_q and V_{n-q} of special kind (see [Ref 2]). In a special coordinate system the metric of the V_n then has the form

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$$(1) \quad ds^2 = g_{ij}(x^k) dx^i dx^j + \sigma(x^k) a_{\alpha\beta}(x^{\gamma}) dx^{\alpha} dx^{\beta}$$

A Criterion for the Semireducibility of Homogeneous Riemannian Spaces SOV/20-120-6-4/59

In the case $H = H_0 \times H_1 \dots \times H_p$ a generalization is obtained, where H_0 arbitrary, and H_t , $t > 0$, possess the property mentioned above. Then V_n is p -times semireducible, i.e. in a certain system it is

$$(2) \quad ds^2 = ds_0^2(x^1) + \sigma_1(x^1) ds_1^2(x^{d_1}) + \dots + \sigma_p(x^1) ds_p^2(x^{d_p})$$

In both cases the group G_r is non-mixing with respect to (1) and (2) respectively (see [Ref 3]).

There are 4 references, 2 of which are Soviet, 1 Japanese, and 1 Roumanian.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V. Lomonosov)

PRESENTED: February 15, 1958, by P.S. Aleksandrov, Academician

SUBMITTED: February 13, 1958

1. Topology 2. Mathematics

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16(1)

AUTHORS: Kruchkovich, G.I., and Solodovnikov, A.S. SOV/140-59-3-14/22

TITLE: Constant Symmetrical Tensors in Riemannian Spaces

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1959, Nr 3, pp 147-158 (USSR)

ABSTRACT: Absolutely parallel tensors are called constant tensors. The authors investigate Riemannian spaces in which there exist constant symmetrical tensors A_{ij} : $A_{ij,k} = 0$, $A_{ij} = A_{ji}$, $A_{ij} \neq \lambda g_{ij}$. 14 theorems are formulated and proved, e.g.:
Theorem: If an irreducible Riemannian space admits constant symmetrical tensors $A_{ij} (\neq \lambda g_{ij})$, then among them there exists at least one tensor the square of which either is equal to zero or it distinguishes from the measure tensor only by the sign.
Theorem: In order that an irreducible V_n admits constant $A_{ij} (\neq \lambda g_{ij})$ it is necessary and sufficient that V_n belongs to one of the following classes: 1) V_n is a Riemannian extension of a Riemannian space V_r , $2r \leq n$; 2) V_n is defined by the real part or the imaginary part of the complex metric

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Constant Symmetrical Tensors in Riemannian Spaces

SOV/140-59-3-14/22

$$\phi = (S_{\alpha\beta} + iT_{\alpha\beta})(dx^{\alpha} + idy^{\alpha})(dx^{\beta} + idy^{\beta}),$$

where $\|S_{\alpha\beta}\|$ and $\|T_{\alpha\beta}\|$ are certain symmetrical matrices of the order $m = \frac{n}{2}$.

The authors mention P.A. Shirokov and A.P. Shirokov. They thank P.K. Rashevskiy, whose seminar inspired this report.

There are 12 references, 6 of which are Soviet, 2 American, and 4 English.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute)

SUBMITTED: June 7, 1958

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C 111/ C 333

16.5600

AUTHOR: Kruchkovich, G. I.

TITLE: On Riemannian Spaces With a Sufficiently Large Group of Motions

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 6, pp. 1283-1286

TEXT: Let the Riemannian space V_n have a positive-definite metric ds^2 .

Theorem 1: If a non-Einsteinian V_n admits the transitive group of motions G_r with the dimension

$$r > \frac{(n-2)(n-3)}{2} + 6,$$

then it belongs to one of the following types:

1.) V_n is of constant curvature,

$$r = \frac{n(n+1)}{2}.$$

2.) $V_n = V_1 \times V_{n-1}$, where V_{n-1} is of constant curvature $K \neq 0$,

$$r = \frac{n(n-1)}{2} + 1.$$

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On Riemannian Spaces With a Sufficiently Large Group of Motions

3.) $V_n = V_2 \times V_{n-2}$, where V_2, V_{n-2} is of constant curvature,

$$r = \frac{(n-1)(n-2)}{2} + 3.$$

4.) V_n has the metric

$$(5) (ds)^2 = (dx^1)^2 + e^{2bx^1} (dx^2)^2 + e^{2ax^1} ((dx^3)^2 + \dots + (dx^n)^2),$$

$$a \neq 0, b \neq 0, a \neq b \quad r = \frac{(n-1)(n-2)}{2} + 2.$$

Theorem 2: Every Riemannian space V_n which admits a transitive group of motions with the dimension n

$$r > \frac{(n-2)(n-3)}{2} + 8 \quad (n > 6, \neq 8),$$

belongs to one of the types of theorem 1.

Theorem 3: If V_n admits a non-transitive group of motions of the

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dimension $r > \frac{(n-2)(n-3)}{2} + 6$ ($n > 4$) then it belongs to one of the following types

1.) V_n is subprojective $r = \frac{n(n-1)}{2}$, the orbits of the group are V_{n-1} .

2.) V_n has the metric

$$(6) \quad (ds)^2 = (dx^1)^2 + \varphi(x^1)(dx^2)^2 + \tilde{G}(x^1) ds_1^2(x^3, \dots, x^n),$$

where ds_1^2 has a constant curvature $r = \frac{(n-1)(n-2)}{2} + 1$ and the orbits of the group are the V_{n-1} .

3.) V_n has the metric

$$(4) \quad ds^2 = ds_0^2(x^1, x^2) + \tilde{G}(x^1, x^2) ds_1^2(x^3, \dots, x^n)$$

where ds_1^2 has a constant curvature $r = \frac{(n-1)(n-2)}{2}$ and the orbits of the group are the V_{n-2} .

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On Riemannian Spaces With a Sufficiently Large Group of Motions

Theorem 4: Every Riemannian space which admits a transitive or intransitive group of motions G_r of the dimension

$$r > \frac{(n-2)(n-3)}{2} + 8 \quad (n \neq 6, 8)$$

is semireducible.

Theorem 5: A Riemannian space V_n admits no complete group of motions G_r , the dimension of which satisfies one of the inequalities.

- 1.) $\frac{n(n-1)}{2} + 1 < r < \frac{n(n+1)}{2} \quad (n \neq 4)$
- 2.) $\frac{(n-1)(n-2)}{2} + 3 < r < \frac{n(n-1)}{2} \quad (n \neq 6, 8)$
- 3.) $\frac{(n-2)(n-3)}{2} + 8 < r < \frac{(n-1)(n-2)}{2}$

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C 111/ C 333

On Riemannian Spaces With a Sufficiently Large Group of Motions

Gu Chao-Khao is mentioned in the paper.

There are 13 references: 4 Soviet, 3 Japanese, 2 Roumanian,
2 American, 1 English and 1 Italian.

ASSOCIATION: Vsesoyuznyy zaochnyy energeticheskiy institut
(All-Union Correspondence Power Engineering
Institute)

PRESENTED: April 13, 1960 by J. G. Petrovskiy, Academician

SUBMITTED: April 7, 1960

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KRUCHKOVICH, G.I.

One class of Riemann spaces. Trudy Sem. po vekt. i tenz. anal.
no. 11:103-128 '61. (MIRA 15:3)
(Spaces, Generalized) (Distance geometry)

KRUCHKOVICH, G.I.

Theory of $V(K)$ Riemann spaces. Sib. mat. zhur. 2 no.3:400-413
My-Je '61. (MIRA 14:7)

(Spaces, Generalized)

KRUCHKOVICH, G.I.

Uniqueness of a minimal semireducible expansion. Dokl. AN SSSR 146
no.5:999-1002 0 '62. (MIRA 15:10)

1. Vsesoyuznyy zaachnyy energeticheskiy institut. Predstavleno
akademikom I.N.Vekua.
(Distance geometry)

DYUBYUK, Petr Yevgen'yevich; KRUCHKOVICH, G.I.; GLAGOLEVA, N.N.;
GUTARINA, N.I.; PANFILOVA, I.A.; RIMSKIY-KORSAKOV, B.S.;
SENKEVICH-PURSHTYIN, R.S.; SULEYMANOVA, Kh.R.; CHEGIS, I.A.;
SELIVERSTOVA, A.I., red.; GOROKHOVA, S.S., tekhn.red.

[Problems for a higher mathematics course in technical
schools of higher education] Sbornik zadach po kursu vys-
shei matematiki dlia vtuzov. [By] P.E.Diubiuk i dr. Moskva,
Vysshaya shkola, 1963. 661 p. (MIRA 17:1)

KRUCHKOVICH, G.I.

Homogeneous spaces in the general theory of relativity. Trudy
Sem.po vekt.i tenz.anal. no.12:71-95 '63. (MIRA 16:6)
(Relativity (Physics))

KRUCHKOVICH, G.I.

Geodesic correspondence of semireducible Riemann spaces. Dokl.
AN SSSR 152 no.1:43-45 S '63. (MIRA 16:9)

1. Vsesoyuznyy zaochnyy energeticheskiy institut. Predstavleno
akademikom I.G.Petrovskim.

(Spaces, Generalized)

DYUBYUK, P.Ye.; KRAUCHKOVICH, G.I.; GLAGOLEVA, N.N.; GUTARINA,
N.I.; PANFILOVA, I.A.; RIMSKIY-KORSAKOV, B.S.; SENKEVICH,
R.L.; SULEYMANOVA, Kh.R.; CHEGIS, I.A.; GEYDEL'MAN, R.M.,
prof., retsenzent; SELIVERSTOVA, A.I., red.

[Problems for a course in higher mathematics] Sbornik za-
dach po kursu vysshei matematiki. Moskva, Vysshaya shkola,
1965. 590 p. (MIRA 18:8)

ALASHEYEV, I.T.; KRUCHKOVSKIY, A.K.

Power propelled ventilation housings over shakeout grates.
Lit. proizv. no.1:16-17 Ja '62. (MIRA 16:8)

(Foundries--Equipment and supplies)

KRUCHKOVSKIY, A.K.

Hydraulic dust-removing unit for casting shops. Biul.tekh.-ekon.inform.
Gos. nauch.-issl. inat. nauch. i tekhn. inform. 18 no.6:27-28 Jo '65.
(MIRA 18:7)

KRUCHVA, Oldrich

Distr: 4E3b/4E3d/
4E2c(j)

Preparation of silicon alkyl resins. Václav Chvalovský and Oldřich Kruchva (Chem. ústav ČSAV, Prague). *Chem. průmysl* 9, 433-7 (1959). The extent of breaking Si-C bonds was studied during esterification and reesterification reactions of organosiloxanes in the presence of acids at elevated temps. and the behavior of organosiloxanes bearing OH groups was followed in neutral medium at 200-250°. PhSi(OR)_3 was prepd. from PhSiCl_3 and RtOH in 60% yield (b. 233-40°), during this esterification 1.68 mole-% of the Ph groups being cleaved. Analogous results were obtained with $\text{Ph}_2\text{Si(OR)}_2$ (I) and methylphenylethoxysiloxanes. The degree of reesterification of I with an alkyl resin at 120-210° in the presence of concd. HCl (II) increased from 4% without II to 74.6% with 4.44 cc. II/0.45 mole I. The extent of reesterification of $\text{Me}_2\text{Si(OR)}_2$ (III) and MeSi(OR)_3 (IV) under similar conditions in-

creased in the order $\text{R} = \text{Pr} > \text{Bu} > \text{Et}$, the yield of ROH being a little higher with IV than with III. Hydrolysis of cyclic organosiloxanes (V) was performed in an autoclave at 220-250° with 0-1.5% catalyst, the activity of the latter decreasing in the order $\text{NaOH} > \text{PhI}$ (Ph stearate) $> \text{ZnO} > \text{HCl}$, the same order being valid for the cleavage of Si-C bonds, the latter being always $< 0.26\%$ for $(\text{Me}_2\text{SiO})_n$ (VI), $(\text{Me}_2\text{SiO})_n$ (VII), $(\text{Me}_2\text{SiO})_n$ (VIII), and $(\text{Et}_2\text{SiO})_n$ (IX). On the other hand in $(\text{MePhSiO})_n$ (X) practically all Ph groups were cleaved at 250° with PbO as catalyst and simultaneously the cleavage of Me-Si was increased to 0.4%. The Si-O bonds in VI, VII, and in linear methylphenylsiloxanes resisted hydrolysis even at 250°, whereas VIII, IX, and X were hydrolyzed easily at 220° to the corresponding silanols, the OH groups of the latter condensing on further heating to give insol. polymers. Propanolysis of V followed the same rules as the hydrolysis, the extent of Si-O and Si-C cleavage being higher due to the homogeneity of the system. The authors recommended carrying out all steps of the prepn. at temps. as low as possible.

J. Šelenda

RATHOUSKY, J.; KRUCHNA, O.; BAZANT, V.

Silicon organic compounds. XIX. Reaction of alkylchlorosilane with
arylechlorosilane on solid acid catalysts. Coll Cz Chem 25 no.7:
1807-1814 JI '60. (EEAI 10:9)

1. Institut für theoretische Grundlagen der chemischen Technik,
Tschechoslowakische Akademie der Wissenschaften, Prag.

(Silicon) (Organic compounds) (Chlorosilane)
(Alkyl groups) (Aryl groups) (Catalysts)

41392

Z/009/62/000/009/002/004
E112/E435

15.1170

AUTHORS: Rathouský, Jiří, Kruchňa, Oldřich

TITLE: Preparation of methylsilicone resins

PERIODICAL: Chemický průmysl, no.9, 1962, 513-517

TEXT: The industrial preparation of silicone resins consists of a controlled hydrolysis of methylchlorosilanes. In the case of methyltrichlorosilane, cross-linked insoluble products with limited technological applications are obtained. Polymers with improved properties (linear, and soluble in organic solvents) can be prepared if the ratio $\text{CH}_3 : \text{Si} > 1$, which may be achieved by hydrolysing a mixture of methyltrichlorosilane with dimethyldichlorosilane. Hydrolysis is carried out by the action of water on a toluene solution of the chlorosilanes. Experiments to prevent the formation of gels during hydrolysis are described. Best results were achieved with butanol which displayed the additional advantage of preventing the formation of emulsions. The effects of temperature, butanol, water and toluene concentrations on the rate of hydrolysis and gel-formation were studied. Required minimum quantities of butanol for compositions of varying $\text{CH}_3 : \text{Si}$ ratios, expressed in % of

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Preparation of methylsilicone resins

methylchlorosilanes, were: $\text{CH}_3 : \text{Si} = 1$ - 45% butanol;
 $\text{CH}_3 : \text{Si} = 1.2$ - 35% butanol; $\text{CH}_3 : \text{Si} = 1.4$ - 20% butanol;
 $\text{CH}_3 : \text{Si} = 1.6$ - 5% butanol. Temperature effects on gel formation
were insignificant and so was the concentration of toluene. Only
when the concentration of the latter was reduced to 1/4 of the
original amount did gel formation occur. The reduction of toluene
concentration can be counteracted by increasing the concentration
of butanol. As the hardening temperatures of silicone resins
with a $\text{CH}_3 : \text{Si}$ - ratio above 1.3 are comparatively high,
precondensation is indicated. An alcoholic solution of KOH was
investigated and the effects of $\text{Si} : \text{K}$ and $\text{CH}_3 : \text{Si}$ ratios on
hardening times were determined. The pot-life of different types
of methylsilicone resins was followed for a period of 2 to
8 months and it was established that compositions which were not
precondensed were stable for that period of time. For the
precondensed types, the stability was determined by the degree of
precondensation. A silicone resin with a ratio $\text{CH}_3 : \text{Si} = 1$
prepared by the addition of butanol ($\text{C}_4\text{H}_9\text{OH} : \text{Si} = 1.5$) gave, on
hardening, a tough and strong film, characterized by good
adhesion to aluminium and good thermal stability. It proved also
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Preparation of methylsilicone resins

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an excellent hydrophobic agent for building materials, ceramics, paper and textiles. Its properties were superior to methylsilicone resins with higher $\text{CH}_3\text{:Si}$ ratios but prepared without butanol. There are 4 figures and 2 tables.

ASSOCIATION: Ústav teoretických základů chemické techniky
CSAV, Praha (Institute for Theoretical Chemical
Technology CSAV, Prague) J

SUBMITTED: May 17, 1962

Card 3/3

RATHOUSKY, Jiri; KRUCHNA, Oldrich

Preparation of methyl silicone varnishes. Chem prum
12 no.9:513-517 S '62.

1. Ustav teoretickych zakladu chemicke techniky,
Ceskoslovenska akademie ved, Praha.

RATHOUSKY, Jiri; SETINEK, Karel; KRUCHNA, Oldrich; BAZANT, Vladimir

Basic principles of terephthalic acid isolation from potassium terephthalate. Chem prum 13 no.4:170-173 Ap '63.

1. Ustav teoretických základů chemické techniky, Československá akademie věd, Praha.

RATHOUSKY, Jiri; KRUCHNA, Oldrich; SETI, EK, Karel; BAZANT, Vladimir;
SILADI, J.

Practical problems of terephthalic acid isolation from the rearrangement product of potassium phthalate to potassium terephthalate. Chem prum 13 no.6:295-299 Je '63.

1. Ustav teoretickych zakladu chemicke techniky, Ceskoslovenska akademie ved, Praha (for all, except Siladi).
2. Spolek pro chemickou a hutni vyrobu, Usti nad Labem (for Siladi).

BATHOLICKY, Jiri; SEITANEK, Karel; KRUCHINA, Oleg; BAZANT, Vladimir

Kinetics of the formation of terephthalic acid by the reaction of potassium hydrogen terephthalate with phthalic anhydride in aqueous medium. *Chem prum* 14 no.5:225-229 My '64.

1. Institute of Theoretical Principles of Chemical Technology,
Czechoslovak Academy of Sciences, Prague.

RATHOUSKY, J.; KRUCHNA, O.; BAZANT, V.

Organosilicon compounds. Pt. 36. Coll Cz chem 29 no.7:1633-1642 J1 '64.

1. Institut für theoretische Grundlagen der chemischen Technik,
Tschechoslowakische Akademie der Wissenschaften, Prague.

RATHOUSKY, J.; KRUCHNA, O.; BAZANT, V.

Organosilicon compounds. Pt.38. Coll Cz Chem 30 no.3:862-872 Mr '65.

1. Institut fur theoretische Grundlagen der chemischen Technik, Tschechoslowakische Akademie der Wissenschaften, Prague. Submitted June 30, 1964.

KRUCICANIN, S.

Strain gauges for high temperatures, Pt. 2, p. 396.
TEHNIKA, Beograd. Vol. 9, No. 3, 1954.

SOURCE: East European Accessions List, (EEAL) Library
of Congress, Vol. 5, No. 3, August, 1956.

XXXXXXXX, A.

Atomic jet propulsion. p. 346. VAZDUHOPLOVNI GLASNIK.
(Jugoslovensko ratno vazduhoplovstvo) Zeman.

Vol. 11, No. 3, May/June 1955

SOURCE: East European Accessions List, (EEAL), Library of
Congress, Vol. 4, No. 12, December 1955

YUGOSLAVIA / Chemical Technology. Chemical Products H-23
and Their Application. Chemical Process-
ing of Natural Gases and Petroleum. Motor
and Rocket Fuels. Lubricants.

Abs Jour: Ref Zhur-Khimiya, No 1, 1959, 2565.

Author : Krucicanin, S.

Inst : Not given.

Title : Fuels for Rocket Motors.

Orig Pub: Tehnika, 1957, 12, No 11, 240-248.

Abstract: A review. The characteristics of rocket fuels
(liquid and solid) and oxidants. Factors are ex-
amined which influence a selection of the fuel for
operating a rocket motor. The possibilities are
discussed concerning the application of nuclear
fuel in such a motor. -- M. Pavlovsky.

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24138

Y/001/60/000/004/001/002

D241/D301

26.3110

AUTHOR: Kručićanin, Slobodan, Docent

TITLE: Approximate correction of the measured thrust for the
silencer effect

PERIODICAL: Tehnika, no. 4, 1960, 739 - 740

TEXT: The object of this brief study is to establish a method of correcting -- for the silencer effect -- the thrust of turbo-jet and rocket engines, as measured in silenced test installations. However, the addition of a silencer introduced an error into the thrust measurement and a correction was required for this. The test installations are shown diagrammatically in Figs. 1 and 2. The following symbols are used: F = force (kg), V = velocity (m/sec), W = mass flow (kg/sec), g = gravitational acceleration (m/sec²), p = pressure (kg/cm²), t = time (sec), ρ = density (gr/cm²). The suffixes used are: a = air or atmospheric, b = plane of jet in ejector, j = outlet plane from turbo-jet engine, e = outlet plane from rock-

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D241/D301

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Approximate correction of ...

et engine, u = inlet plane to engine, f = fuel, o = oxydant. The assumptions underlying the solutions are: (1) at the control volume boundaries the air velocities are uniform, (2) the flow is one-dimensional, (3) internal and external friction are negligible, (4) there is no change in the working fluid within the control volume. On (a) turbo-jet engine, from the momentum equation for the control volume, the author arrives at the statement, that the measured thrust is smaller than the true thrust by an amount

$$F = A_c(p_a - p_c) \quad (6)$$

giving for the true thrust the expression

$$F = F_{\text{meas.}} + A_c(p_a - p_c). \quad (8)$$

As regards (b) the rocket engine, from momentum considerations again the author arrives at

$$F_{\text{meas}} = \frac{W_g + W_o}{g_o} V_e + A_e(p_e - p_a) - A_c(p_a - p_c). \quad (12)$$

The first two terms on the r.h.s. represent the true thrust in free

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air, which is, therefore, given by

$$F = F_{\text{meas}} + A_c(p_a - p_c). \quad (14)$$

There are 2 figures and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: A.H. Shapiro, The Dynamics and Thermodynamics of Compressible Fluid Flow, vol. I, New York, 1953; E.S. Taylor, Text-notes, MIT, Cambridge, U.S.A., 1953; A.H. Shapiro, Text-notes, MIT, Cambridge, U.S.A., 1953.

ASSOCIATION: Mašinskog fakulteta univerziteta u Beogradu (Faculty of Mechanical Engineering, University of Belgrade) X

Card 3/5

KRUCINSKI, Marian

Kinetics of melting of the permanent charge in the open-hearth process. Przegl naukowo-tech AGH no.6:1-12 '62.

1. Katedra Metalurgii Stali, Akademia Gorniczo-Hutnicza, Krakow.

OSIKA, Zygmunt, dr inz.; KRUCINSKI, Marian, mgr inz.

Possibilities of reducing the manganese consumption by
deoxidizing steel under condensed slag. Hutnik P 30 no.
11: 367-371 N '63. '

KRUCOWA, Stanislaw, dr.

Pre- and postnatal consultation in the main antituberculosis
center in Warsaw. Gruzlica 22 no.11:830-832 Nov 54.

(PRENATAL CARE

in Poland, counseling in antituberc. centers)

(POSTNATAL CARE

in Poland, counseling in antituberc. centers)

KRUCZALOWA, Maria; SCHILLEROWA, Barbara

Evaluation of vaccines and the effectiveness of vaccinations against typhoid fever. III. Selection and preliminary characteristics of vaccines designated for control vaccinations. Przegl. epidem. 17 no.1/2:23-32 '63.

1. Z Wytworni Surowic i Szczepionek w Krakowie Dyrektor: dr Z. Moszczenski i z Centralnego Laboratorium Zjednoczenia Wytworni Surowic i Szczepionek w Warszawie Kierownik: prof. dr L. Rzuclidlo.

(TYPHOID-PARATYPHOID VACCINES)

PLACHINSKA, Janina; KRUCZALOWA, Maria, asyst. techn. HULNICKA, Helena

Use of a function test on mice for the determination of the immunogenic force of various strains of *S. typhi* and typhoid endotoxin. Przegl. epidem. 16 no.1:13-18 '62.

1. Z zakładu Epidemiologii AM w Warszawie. Kierownik prof. dr F. Przesmycki i z Wytworni Surowic i Szczepionek w Krakowie Doradca naukowy prof. dr Z. Przybykiewicz.

(TYPHOID immunol)

(VACCINES)

JAWOR, E.; KRUCZEK, J.

Present state of recognizing the accumulation conditions
of crude oil in the Niepolomice Forest region. Wlad
naft 10 no.2:38-39, 42 F'64.

KRUCZEK, Jan

The PME-12 mobile-drilling mast. Wlad naft 6 no.9:199-201 S '60.
(EEAI 10:1)

(Poland--Oil well drilling)

KRUCZEK, Jan

The Masur D-50 extracting crane. Wlad naft 8 no.7:154-157 J1
'62.

KRUCZEK, Jan

The Mazur D-50 elevator with a jerk-line. Wlad raft 9 no.12:
273-275 D'63.

KRUCZEK, Jan

Problem of technological progress and rationalization in the
Gorlice Petroleum Mining Enterprise in 1963. Wlad naft 10
no.3:63-65 Mr'64

JAWOR, E.; KRUCZEK, Jozef

Present state of identifying the conditions for crude oil accumulation in the Niepolomice Forest region. Wiad naft 10 no.3:57-59 Mr'64

KRUCZEK, Jozef

Petroleum deposits in the Puszcza Niepolomicka region. Wiad mst 11
no.4:73-76 Ap '63.

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2

1522. Conditions of rational exploitation of natural oil flow. B. Kruczek. *Nafte* (Krakow), 1952, 8, 147-52.—From consideration of crude saturated with gas in the reservoir, the conclusion is drawn that it is advantageous in the long run to limit exploitation, and thus to prevent separation of gas and liq underground. Full and deep sampling is necessary. M. S.

8-6-51
JP

KNUCZEK, R.

"The Principles of the Proper Exploitation of Petroleum Reservoirs by Means of Deep-well Pumps." p. 117 (NAFTA, Vol. 9, No. 5, May 1953) Warszawa

SO: Monthly List of East European Accessions, Library of Congress, Vol. 2, No. 10, October 1953. Unclassified.

Journal of the Institute of Petroleum
Vol. 40 No. 362
Feb. 1954
Oilfield Exploration and Exploitation

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R. Kuznetsov. *Nafta (K. dom)*, 1952, 8, 117-52. From con-
sideration of crude saturated with gas in the reservoirs the
conclusion is drawn that it is advantageous in the long run to
limit exploitation, and thus to prevent separation of gas and
oil underground. Full and deep sampling is necessary.

M. S.

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000826710014-2

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000826710014-2"

KRUCZEK, R.

The completion of well boring. p. 243. Vol. 10, no. 11, Nov. 1955.
Nafta.

SOURCE: East European Accessions List (EEAL), LC. Vol. 5, no. 3, March 1956.

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000826710014-2

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000826710014-2"

KRUCZKOWSKI, Marian, mgr.

The role of the technical laboratory worker in a hospital pharmacy.
Farmacja Pol 16 no.24:528-530 D '61.

1. Akademia Medyczna, Gdansk.

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KRUCZKOWSKI, R.

TECHNOLOGY

PERIODICAL: ODZIEZ, VOL. 10, JAN. 1959.

KRUCKOWSKI, R. The Collegium of the Association of the Clothing Industry. p. 7.

Monthly List of East European Accessions (EAI) LC Vol. 8, no. 4
April 1959, Unclass.

PRUCZKOWSKI, R.; LEPLA, K.

Preliminary remarks on the draft of the plan of the Clothing Industry Union for the years 1959-1965. p. 49.

ODZIEZ. (Centraine Zarzady Przemyslu Dzwiewiarskiego, Odziezowego i Ponczoszniczego) Lodz, Poland. Vol. 10, no. 2, February 1959

Monthly list of East European Accession (EEAI) LC, Vol. 8, no. 7, July 1959

Uncl.

KRUCZEWSKI, R.

Interdepartmental Coordination Committee on the Problems of the Clothing Industry. p. 185

ODZIEZ Lodz, Poland Vol. 10, no. 9, Sept. 1959

Monthly List of East European Accessions, (EEAI) LC, Vol. 9, no. 2,
Feb. 1959
Uncl.

KRUCZYNSKI, JAN.

"Frzecinanie, obrzynywanie i przycinanie tarcicy. (Wyd. 1.) Warszawa,
Panstwowe Wydawn. Rolnicze i Lesne, 1955. 72 p. (Sawing, edging, and
trimming lumber; 1st ed.)

DA

Not in DLC

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

ACC NR: AP6027981

SOURCE CODE: CZ/ 24/66/000/004/0101/0106

AUTHOR: Nipl, Zdenek (Engineer); Krudone, Jaroslav (Engineer)

38

ORG: Institute of Geodesy and Cartography, Pardubice (Ustav geodezie a kartografie)

TITLE: Preparation of a sectoral summary of cultural areas in accordance with the data of real estate registers

SOURCE: Geodeticky a kartograficky obzor, no. 4, 1966, 104-106

TOPIC TAGS: punched card, computer, economic system

ABSTRACT: Experience in preparation of the summary by means of punched-card machinery is described. Summaries were prepared of all the subtypes of production and of the total values of parcels by kinds. Agricultural cooperatives were classified in groups according to their areas. Processes used in a surveying department and in a computer center are discussed. Orig. art. has: 2 tables. [Based on authors' Eng. abst.]
[JPRS: 36,844]

SUB CODE: 09, 05 / SUBM DATE: none

Card 1/1 CC

UDC: 347.235.11(437)"1965" : 518.5

09/7 1696

LUKES, R.[deceased]; SROGL, J.; KRUDENC, L.

Splitting of furan derivatives by means of hydrochloric acid. Part 2:
Reaction of branched furfuryl ketones. Coll Cz Chem 26 no.9:2456-
2459 '61.

1. Institut für organische Chemie, Technische Hochschule für Chemie,
Frag.

(Furan) (Hydrochloric acid) (Ketone)

Khudoley, A.D.

137-58-2-3127

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 128 (USSR)

AUTHOR: Khudoley, A.D.

TITLE: Automatic Resistance Surfacing of Steel by Vibration in a Flow of Electrolyte (Avtomaticheskaya vibrokontaktnaya naplavka stali v struye elektrolita)

PERIODICAL: Mashinostroitel', 1957, Nr 5, pp 18-20

ABSTRACT: The essence of vibration resistance surfacing (VS) of steel in a flow of electrolyte is described in detail, as is the design of a universal automatic vibration resistance head, the power feed circuits for pulsed alternating current coming to the head through two model VSG-ZM selenium rectifiers connected in series, and the designation and composition of the electrolyte. VS has been introduced at the Minsk Tractor Plant for rehabilitation of worn lathe spindles and motor rotor shafts, and can be used to face hard alloys and to reinforce tools. A VS head may be mounted on lathes of various types. The following VS procedures are recommended: For parts of 20-60, 60-100, 100-160, 160 and more mm, the feed by the head is, respectively, 1.5, 1.5 (sic!), 1.25, and 1.25 (sic!) mm per revolution,

Card 1/2

137-58-2-3127

Automatic Resistance Surfacing of Steel by Vibration in a Flow of Electrolyte

and the rate of rotation of part is 3.0, 2.0, 1.5, and 1.0 rpm. VS makes it possible to apply a layer 0.1 - 0.2 mm in thickness even to heat-treated parts, without causing tempering or distortion thereof. The superiority of VS over gas welding repair and electric arc surfacing is noted.

A.K.

1. Steel--Plating--Equipment 2. Electroplating--Equipment 3. Vibration
--Applications

Card 2/2

KRUDOWSKI, W.

Using artificial materials in sanitary technology. p. 42.

GAZ, WODA I TECHNIKA SANITARNA, (Polskie Zrzeszenie Gazowników, Wodociągow-
cow i Techników Sanitarnych) Warszawa. Vol. 30, no. 2, Feb. 1956.

SOURCE: East European Accessions List (EEAL), Library of Congress,
Vol. 5, no. 7, July 1956.

KRUDOWSKI, W.

Preliminary conditions for the utilization of synthetic materials (viridur) in pumping.

p. 373 (Gaz, Woda I Technika Sanitarna. Vol. 31, no. 10, Oct. 1957. Warszawa, Poland)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

KRUDRNA, Milan; UNZEITIG, Jan

Experience with designing the rubber tube pump. Chem prum
12 no.3:139-141 Mr '62.

1. Vyzkumny ustav syntetickych pryskyric a laku, Paskubice.

TOTH, Marton; KRUDY, Geza

Effect of pelleted food on the weight increase and food conversion of chickens. Allattenyesztes 13 no.4:355-366 D '64.

1. Division of Feeding and Physiology of the Research Institute of Small Animal Breeding, Godollo. Submitted February 20, 1964.

KRUDYSZ, Jan; KLECZENSKI, Aleksander

Effect of stimulation treatment on the elimination of neutral 17-ketosteroids in urine. Klin. oczna 27 no.3:247-254 1957.

1. Z Kliniki Ocznej A. M. we Wroclawiu. Kierownik: prof. W. J. Kapuscinski i z II Kliniki Chorob Wewnetrznych A. M. we Wroclawiu. Kierownik: prof. A. Falkiewicz.

(IRIDOCYCLITIS, urine in

17-ketosteroids during stimulation ther. with typhoid vaccine (Pol))

(STEROIDS, in urine

17-keto, during stimulation ther. of iridocyclitis with typhoid vaccine (Pol))

(TYPHOID FEVER

vaccine, eff. on urinary 17-ketosteroids during stimulation ther. of iridocyclitis (Pol))

KAPUSCINSKI, Witold J.; ANDRZEJEWSKI, Feliks; BRODZIAK-KRZESIEKOWA, Kazimiera;
oraz wspolpr.: DROZDOWSKA, S.; HANCZYC, P.; HUSZCZA, A.; ILCZYSHYNSKA, H.;
CZEREK-JAGUCZANSKA, H.; KRUDYSZ, J.; PACYNSKA, J.; WOZNIAKOWA, I.

Problem of the evolution of some eye diseases in Poland according to material of the Wroclaw clinic. Klin. ocna 31 no.4:411-422 '61.

1. Z Kliniki Ocznej AM we Wrocławiu Kierownik: prof. dr med. W. J. Kapuscinski Z Katedry Maszyn Elektrycznych Politechniki Wrocławskiej Kierownik: prof. dr inż. F. Andrzejewski.

(OPHTHALMOLOGY)

Warsaw, Polish History of Medicine, Vol 16,
No 1, January-February 1964, p. 21

20

7. "Studies on the Adaptation of the System to External
1. Adaptation Function Process." Czesław KAWCZYŃSKI,
Józefa Górecka, Amoska WISNIAŁA, and Andrzej
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siology (Polish People's Republic) of PAI
at Warsaw (Director: Prof. Dr. L. PAJAN, M.D.) and
at the Research Office of General Pathology (Polish
People's Republic) of the Medical Academy at Lodz
(Director: Prof. Dr. P. YERUET); pp 139-147.
8. "Physiological Determination of Amino Acids in
Hydrolyzates of Human Blood Plasma." Włodzisław
of the Research Office for General Physiology and
Physiology of the Medical Academy at Lodz (Director:
of the Research Office of General Pathology at Warsaw
(Director: Prof. Dr. P. YERUET); pp 149-157.
9. "Obtaining Clear Solutions for the Crystallization
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Dr. L. MAJCHOWSKI); pp 159-164.
10. "Effect of Red Blood Transfusion on Intracellular
Protein (as Indicated by the Pyruvate Kinase
of the Medical Academy at Lodz (Director: Decent
Prof. Dr. P. YERUET); pp 165-169.
11. "From the Studies on the Physiological Role of Amino
Acids in the Protein of Liver Tissue." Włodzisław of
the Medical Academy at Lodz (Director: Decent Dr.
P. YERUET); pp 169-171.

1397

2/3

KRUDYSZ, Jan

KRUDYSZ, Jan

Effect of preserved blood transfusion on the intraocular pressure.
Postepy hig.med.dosw. 16 no.1:161-165 '62.

1. Z Kliniki Ocznej AM we Wroclawiu Kierownik: prof. dr. W.J.Kapuscinski.
(BLOOD TRANSFUSION) . (INTRAOCULAR PRESSURE)

KAPUSCINSKI, Witold Juliusz; KRUDYSZ, Jan; SKRZYPCZAK, Kazimierz

Ocular complication in methyl alcohol intoxication. Pol. tyg. lek.
17 no.14:511-516 2 Ap '62.

1. Z Kliniki Ocznej AM we Wroclawiu; kierownik: prof. dr W. J.
Kapuscinski i z Oddzialu Ocznego Okregowego Szpitala Wojskowego we
Wroclawiu; ordynator: lek. med. K. Skrzypczak.

(ALCOHOL METHYL toxicol) (EYE dis)

KAPUSCINSKI, Witold J.; KRUDYSZ, Jan; UHER, Miroslaw

Further studies on the DLH preparation in the treatment of glaucoma.
Klin. oczna 32 no.4:369-376 '62.

1. Z Kliniki Chorob Oczu AM we Wroclawiu. Kierownik: prof. dr med. W.J.
Kapuscinski.

(GLAUCOMA)

(BARBITURATES)

KRUDYSZ, Jan

Accommodation spasm following tooth extraction and its treatment by blood transfusion. Klin. oczna 32 no.4:437-442 '62.

1. Z Kliniki Ocznej AM we Wroclawiu. Kierownik: prof. dr med. W.J. Kapuscinski.

(ACCOMODATION)

(TEETH EXTRACTION)

(BLOOD TRANSFUSION)

KAPUSCINSKI, Witold Juliusz; KRUDYSZ, Jan; UHFZ, Mirosław; SZYMANSKI, Jan

Use of ipronal in the treatment of glaucoma. Wlad. lek. 18
no.4:321-323 15 F '65

1. Z Kliniki Ocznej Akademii Medycznej we Wrocławiu (Kierownik: prof. dr. W.J. Kapuscinski).

KRUDYSZ, Jan

Eye complications after smallpox vaccination during the
smallpox epidemic in Wroclaw in 1963. Klin. oczna 35 no.1:
23-27 '65.

1. Z Kliniki Ocznej Akademii Medycznej we Wroclawiu (Kierow-
nik: prof. dr. med. W.J.Kapuscinski).

KAPUSCINSKI, Witold J., prof. dr. med.; OGIELSKA, Eugenia; RUDKOWSKA, Anna; KENDYSZ, Jan; UHER, Miroslaw; SOYMANSKI, Jan

Further research on the action of Ipronal in simple glaucoma, in relation to electroencephalography. Klin. oczna 35 no.2: 213-217 '65.

1. Z Kliniki Ocznej (Kierownik: prof. dr. med. W.J. Kapuscinski)
i z Kliniki Neurologicznej Akademii Medycznej we Wroclawiu
(Kierownik: prof. dr. med. R. Arend).

YUDYSZ, Jan; BARON, Adam; OPIRYNSKI, Zdzislaw; WALKIEWICZ, Marian

Serological examinations of the aqueous fluid in pregnant rabbits.
Ginek. Pol. 36 no.8:921-922 Ag '65.

1. Z I Kliniki Położnictwa i Chorob Kobietych Akademii Medycznej
we Wrocławiu (Kierownik: prof. dr. med. A. Nowosad) i z Kliniki
Ocznej Akademii Medycznej we Wrocławiu (Kierownik: prof. dr. med.
W. J. Kapuscinski).

S/194/61/000/007/051/079
D201/D305

AUTHOR: Krug, G.A.

TITLE: A semiconductor converter

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
no. 7, 1961, 28, abstract 7 E180 (Avtomatika, tele-
mekhanika i svyaz', 1960, no. 11,9)

TEXT: The series produced semiconductor converter type ППШ-1 (PPSh-1) is designed for supplying the circuits of the change of direction of either direction traffic automatic block systems of dispatching centralization, and for the line circuits of semiauto-
matic traffic blocking. The converter has two ПЗВ (PZV) transis-
tors, power supply 12 V, consumes 0.25 A. The output voltage of
the converter is 40 and 20 V at a current of 40 - 80 mA. The effi-
ciency is 55%. [Abstracter's note: Complete translation]

1. Leningradskiy elektrotekhnicheskiy zavod.

Card 1/1

L 10770-66 EWT(d)/EWI(m)/EMP(c)/EMP(v)/T/EXP(t)/EMP(k)/EMP(b)/EMP(l)/EWA(c)
ACC NR: AP5026215 ETC(m) JD/WH/HM SOURCE CODE: UR/0381/65/000/004/0049/0055

AUTHOR: Krug, G. A. 44.55

ORG: Scientific Research Institute of Bridges, LIIZhTa, Leningrad (Nauchno-issledovatel'skiy institut mostov LIIZhTa) 44.55

TITLE: Automation of the deciphering of the results of ultrasonic control

SOURCE: Defektoskopiya, no. 4, 1965, 49-55

TOPIC TAGS: ultrasonic inspection, automatic translation, digital decoder, computer control system, welding inspection

ABSTRACT: The author analyzes impulse ultrasonic defectoscopy for the possibility of employing electronic digital computers to process logically the information obtained during automatic ultrasonic control of welded joints. At the present time welds are mostly checked by manual defectoscopy, in which the operator carries out on-line recording and checking of the ultrasound tracings. The author examines the transmission of information in ultrasonic inspection from the two viewpoints of Shannon's information theory and random functions (A. M. Yaglom, I. M. Yglom, Veroyatnost' i informatsiya [Probability and Information], Moscow, Fizmatgiz, 1960). The defectoscopic characteristics (presence or absence of defects, their sizes, locations and disposition, influence of the physical properties of the product) of the inspected

Card 1/2

UDC: 620.179.16; 2:681.142.323

L 10770-66

ACC NR: AP5026215

physical system may be regarded as random functions connected with decrease of the indeterminacy of the operator's knowledge of the state of the inspected system. In contrast, the passage of signals characterizing the defects along the channel "defectoscope--test object--defectoscope--decipher of the results of control" may be regarded as the transmission of information in a noisy circuit. The author correlates the process of defectoscopy with the scheme of information theory by deciding upon correspondences of the following type: (1) the source of information is the inspected object; (2) the transmitter-transducer is the piezoelectric converter; (3) the communication channel is the receiver; (4) the receiver is the system consisting of the sensor indicators and the decipher of the results of control; (5) the information received is the results of control which are recorded in a definite information carrier; (6) the source of noise is the source of interference or static. The author develops the logical algorithm for the evaluation of the quality (output information: flaw, indeterminate, no flaw) according to results of ultrasonic control (input information). He compares his scheme with the system of criteria employed to evaluate the welded joints and butts of a railroad bridge span (A. K. Gurvich, Ul'trazvukovaya defektoskopiya svarykh soedineniy [Ultrasonic Defectoscopy of Welded Joints], Kiev, Ukrtekhizdat, 1963). The author thanks A. K. Gurvich for his development of the functional circuit for processing of impulse ultrasonic defectoscopy. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 13,14,09/

SUBM DATE: 26May65/

ORIG REF: 002/

OTH REF: 001

Card 2/2

IVANOV, A.Z.; KRUG, G.K., kand. tekhn. nauk, dotnent

Optimization of a complex technological process by the method
of "evolutionary" planning of the experiment. Trudy MEI no.51:
17-48 '63. (MIRA 17:9)

BORODYUK, V.P.; KRUG, G.K., kand. tekhn. nauk, dotsent

Some aspects of experimental design in collecting statistical
materials. Trudy MEI no.51:115-175 '63. (MIRA 17:9)

KRUG, G.K.; SIRMAY, I.A.; TSVETAYEVA, I.L.

Use of a composite system in the study of complex industrial
processes. Trudy MEI no.59:195-212 '65.

(MIRA 18:10)

KRUG, G. K., and ALEKSIANDROVSKIY, N. M.

"Discussion. Some remarks on Ye. P. Popov's article entitled 'Taking into account the influence of nonlinearity during the calculation of tracking systems,' in Avtom. i telem., 14, No 6, 1953", Avtomatika i Telemekhanika, Vol 15, No 3,4,5, 1954

Abs

W-31148 7 Feb 55

KRUG, G. K.

ALEKSANDROVSKIY, N.M.; KRUG, G.K.

Remarks on E.P. Popov's article "Nonlinearity effects in the design of servomechanisms." (Avtom. i telem. 14 no.6 '53.) N.M.Aleksandrovskii
G.K.Krug. Avtom. i telem. 15 no.4:361 J1-Ag.'54. (MLRA 7:11)
(Servomechanisms) (Popov, E.P.)

SOV/124-57-7-7553

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 7, p 14 (USSR)

AUTHOR: Krug, G. K.

TITLE: Some Problems Relating to the Influence Exerted by Nonlinearities on the Performance Characteristics of Servo-drive Equipment (Nekotoryye voprosy vliyaniya nelineynostey na kharakteristiki sledyashchego privoda)

PERIODICAL: Tr. 2-go Vses. soveshch. po teorii avtomat. regulirovaniya. Vol I. Moscow-Leningrad, Izd-vo AN SSSR, 1955, pp 251-265

ABSTRACT: For the general case of the two-circuit network of a servo-drive device the author investigates the location and influence within it of the nonlinearities associated with the characteristics of its amplifying system (the inactive zone, power limitations, hysteresis loop), the lost motion and dry friction within it, etc. Investigated also are the stability of a self-sustained hunting mode and the effect of nonlinearities on the dynamic error in a servomechanism having a sinusoidally acting input axis. A method is cited for determining the degree of overcontrol.

Card 1/1

Yu. A. Mitropol'skiy

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG -- 129
 AUTHOR KRUG E.K., MININA O.M.
 TITLE On peculiarities of the investigation of the dynamic properties
 of non-linear systems which contain an unstable term.
 PERIODICAL Avtomat. Telemekh. 16, 536-541 (1955)
 reviewed 7/1956

The system consists of one stable and one unstable term, both of first order, and of one non-linear term of Z-shaped characteristic. The corresponding differential equations are discussed in the phase plane; the phase curves consist of parts of hyperbolas.- The assertion of the authors, that the method of the "harmonic balance" fails here, seems to be not proved: for the comparison only the first approximation of the hypothesis of the harmonic balance is used, while for an assertion of stability at least the second approximation is necessary.

8(2)

PHASE I BOOK EXPLOITATION

SOV/2038

Krug, G.K., Docent

Raschet i proyektirovaniye sledyashchikh sistem (Calculation and Design of Servo Systems) Moscow, 1958. 174 p. 1,000 copies printed.

Sponsoring Agency: Moscow, Energeticheskiy institut. Kafedra avtomatiki, telemekhaniki i matematicheskikh mashin.

Assistant Ed.: A.V. Baltrushevich

PURPOSE: The book is approved by the Education Board of MEI as a textbook for students who have taken a course in the theory of automatic control and who are familiar with the basic elements of servo systems, such as amplifiers, motors, and measuring devices.

COVERAGE: The author attempts to systematize the basic problems in the calculation and design of servo systems. He discusses low - and medium-power systems with proportional control. He also describes methods of testing servo systems and their components

Card 1/4

Calculation and Design (Cont.)

SOV/2038

and discusses means of stabilizing system operation. The author thanks Professor L.S. Gol'dfarb, Docent A.V. Lebedev, Lecturer A.V. Baltrushevich, Docent V.L. Shekshne, Docent N.M. Aleksandrovskiy, and Docent L.I. Tkachev for reviewing the manuscript. There are 23 references: 21 Soviet (including 1 translation), and 2 English.

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SOV/2038

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Calculation and Design (Cont.)

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AVAILABLE: Library of Congress (TJ214.K7)	

Card 4/4

JP/jmr
8-26-59

AUTHOR: Krug, German Karlovich, Candidate of Technical Sciences, ~~Docent~~ at the Chair of Automation, Remote Control Engineering and Mathematical Machines at the Moscow Institute of Power Engineering SOV/ 161-58-1-24/33

TITLE: Solution of Two Non-Linear Problems of a Servo System With Proportional Control (Resheniye dvukh nelineynykh zadach dlya sledyashchey sistemy s ~~proportional~~ 'nym upravleniyem)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Elektromekhanika i avtomatika, 1958, Nr 1, pp. 198 - 198 (USSR)

ABSTRACT: The most common typical non-linear problems are presented . They are solved by means of a mathematical machine with the desired accuracy. The values of all factors involved are varied. The solution can be given in the form of nomograms and of tables. First the curve of the transient process is determined, taking into account the saturation of the amplifier. The power limit of the amplifier does not only limit the torque developed by the motor, but also its speed (d.c. motors being considered). The non-linear equation for free oscillations in a servo system with a power limit of the amplifier takes the form of (3). It is analyzed with the help of the phase

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plane. The equations (5) for the phase trajectories are deduced. These trajectories yield the following information: 1) Two separating lines are found on the phase surface, dividing it into two domains with trajectories of different type. 2) The transient process will converge independently of the initial conditions, if the system is stable in a linear investigation. 3) The transient process keeps within the range of linear operation of the amplifier, if the relative attenuation decrement $d \geq 0,285$. In order to obtain the true curve of the transient process in an absolute scale the time scale and the angle error scale must be transformed. In the next section the limit velocity in an intermittent following caused by the forces of dry friction at the control shaft is determined. Under certain conditions, at small "creeping" angular velocities of the master shaft the motion of the control shaft attains a jump-like character. When the master shaft velocity is increased above a certain critical value, the motion of the control shaft becomes continuous. The irregularity of motion is caused by the moment of dry friction. As can be seen from the diagram, the rest friction moment

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exceeds the motion friction moment. The computation of the limit velocity in an irregular following and its successive following order, respectively, is given. There are 11 figures and 3 references, 2 of which are Soviet.

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